# WBS 1.2 Controls

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# WBS 1.2 Controls

ELECTRON BEAM ION SOURCE

## System Overview

- RHIC-generation control system hardware and software
- Ethernet, VME, VxWorks, Linux
- Use existing software for:
  - Device control & archiving (Pulse-to-Pulse Modulation)
  - Data logging, comfort displays, alarms, e-log …
- Low risk – contingency ~20%

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## 1.2.1 Timing & Infrastructure

- Extension of existing f/o for network and standard links
- Standard VME chassis for vacuum system interface
- EBIS event link will support both stand-alone and Booster injection scheduling
- Console workstations, alarms monitor and printer
- SW effort: mainly configuration of existing modules

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## 1.2.2 EBIS

- PS control for 4 “platforms”:
  - Quad Function Generator (QFG) in VME
  - Power Supply Interface (PSI) on platform
  - Function and 2 readbacks at 100kHz, plus Command/Status
  - HV isolation via f/o serial lines between QFGs and PSIs
- Timing via pulsed f/o links
- Custom console program for coordinated power supply control
  - Specifications based on test stand experience
  - Built with standard RHIC software tools

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## 1.2.3 Accelerators & Beam Transport

- MEBT & HEBT power supply interfaces:
  - Power Supply Controller (PSC) - PSI interface for dc magnets
  - QFG-PSI for ramped magnets
  - Standard VME
- Instrumentation interfaces: Like recent projects (TTB and NSRL)
  - Standard VME – commercial I/O modules
- RF Controls Infrastructure: VME64X chassis and standard modules
- Software: Minor modifications to existing programs

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- Procurements > $25K:  (FY05$)
  - PSI modules  ($107K)
  - VME Chassis  ($60K)
  - QFG modules  ($45K)

- Deliverables:
  - VME chassis populated with standard VME interface modules; remote power supply interfaces; f/o links
  - Workstation consoles for commissioning and maintenance
  - Standard network and timing infrastructure elements
  - Custom and (mostly) standard software and database
  - Documentation

# WBS 1.2 Controls

- **Estimated Cost**

| WBS | Description | Direct FY'05K$ | | | |
|---|---|---|---|---|---|
| | | Mat'l | Labor | Contingency | Total |
| 1.2 | Controls | 350 | 100 | $100 (22%) | 550 |
| | | | | | |

- **Labor hours/equivalents**

| Resource Category | estimated hours |
|---|---|
| Engineer | 1,050 |
| Technician | 275 |
| Management | 100 |
| Total | 1,425 |
| Full Time Equivalents | 0.8 |